

CITY OF SUNNYVALE REPORT Planning Commission

January 26, 2004

SUBJECT:

2002-0076 - City of Sunnyvale - Adoption of polices and an ordinance to promote and create incentives for sustainable development in the disciplines of: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. (Negative Declaration)

REPORT IN BRIEF

Sustainable development and green building policies were identified as an area of study by both staff, as an administrative study item in 2001, and by the City Council, as a study issue for 2002. A joint study session with the City Council and Planning Commission was held in January 2003 to develop an informal work plan.

The goals of sustainable development and green buildings are to reduce the usage of resources in construction and operation of buildings and provide better indoor environmental quality for building occupants. Staff has researched existing policies and ordinances that achieve these goals and existing programs in other jurisdictions. There are basically two possible approaches: (1) develop a customized program for Sunnyvale, or (2) adoption of the US Green Building Council's model LEED (Leadership in Energy and Environmental Design) program. LEED is designed mainly for office and industrial buildings.

Two case studies were completed to determine how typical new Sunnyvale buildings would perform based on the LEED rating system. Additional construction costs for various levels of LEED certification were estimated. The findings determined that the additional construction cost for certain LEED credits and compliance may be minimal.

Although LEED programs are in the development stages for retail and single

family residential projects, there are existing guidelines that can be used to encourage the community to include green building design features into new construction.

Based on staff research and findings, the following is recommended:

- Adopt a Council Policy that encourages public facilities to include green building design features into new construction, remodeling, and maintenance of public facilities.
- Adopt an ordinance to allow an additional 5% Floor Area Ratio (FAR) for buildings located in the industrial zoning districts (excluding the Moffett Park Specific Plan area) without a Use Permit when the building is designed and intended for LEED Certification
- Provide education and resources to the community to encourage sustainable development and green building design features
- Encourage staff training and education in the green building industry and advances in green building products

Although specific requirements for the Moffett Park Specific Plan area will be reviewed and approved at a separate public hearing, staff has included preliminary findings and recommendations for a green building program for this area. No action is required for these recommendations at this time.

BACKGROUND

In 2001 Community Development Department staff identified an administrative item to research sustainable development practices and programs. This research was part of on-going staff education on current development trends.

At the December 2001 City Council Study Issues workshop, the Council ranked the Energy Regulations and Green Building Policies and Guidelines (Attachment A) for study in 2002. As staff started to research the issue it was realized that the issue would take more staff time than planned to complete. Combined with the lack of full staff at that time, the issue was extended and listed as a continuing item for 2003. In January 2003 a joint study session was held with City Council and Planning Commission to provide an informal work plan for 2003.

Sustainability and sustainable development can have many different interpretations and meanings to different people. There is a wide array of definitions used that range from economic to social to environmental. Staff has reviewed numerous definitions and selected the following from the World Commission on Environment and Development, 1987:

Sustainability is meeting the needs of the present without compromising

the ability of future generations to meet their own needs.

Development and the built environment have a significant effect on the environment and resources. Buildings consume or are responsible for:

- 40% of the world's total energy use
- 30% of raw materials consumption
- 25% of timber harvest
- 35% of the world's CO₂ emissions
- 16% of fresh water withdrawal,
- 40% of municipal solid waste destined for local landfills
- 50% of ozone-depleting CFCs still in use.
- Negative effects on watersheds, habitat, air quality, and community transportation patterns (Source: Worldwatch *Paper #124*).

Sustainable development is the practice of sustainability that focuses on the built environment. Building materials and design, construction techniques, and building operations and maintenance all have environmental impacts that can be minimized. Green Building practices promote construction of buildings that are healthier for the occupants and healthier for the environment. Following is the definition proposed by staff for sustainable development:

Sustainable development is a practice designed to use natural resources in a manner which does not eliminate, degrade, or diminish their usefulness for future generations.

EXISTING POLICY

Although Sunnyvale does not have a single policy for sustainability, there are many policies and code requirements throughout different departments/divisions that are designed to achieve the goals and purpose of a sustainable development program. Following are examples of programs, policies, and ordinances that encourage sustainability and sustainable development in Sunnyvale:

20-Year Budget

Sunnyvale's 20-year budget forecast allows the long-term benefits to be understood. For example, if something costs \$100,000 today and it can be determined that this is less than the present value of savings over the next 20 years, it makes sense to do it. An example of this type of benefit of the 20-year budget is the photovoltaic cells on the new Senior Center. The present value of the savings in electricity costs over the next 20 years is greater than the installation costs today.

Solid Waste and Recycling

Council Policy 7.1.6 - Recycled Paper Procurement Policy Require the purchase of recycled paper and paper goods when it is economically feasible to do so.

The Solid Waste Program's mission is to reduce the amount of refuse disposed and to provide reliable, competitively-priced, and environmentally sound services for waste reduction, recycling, and solid waste collection and disposal. An important component of the City's diversion effort is the Sunnyvale Materials Recovery and Transfer (SMaRT) Station and Drop-off Center where recyclables and yard trimmings are sorted, processed and marketed; the remaining garbage is hauled to Kirby Canyon Landfill in San Jose for disposal.

Storm Water Runoff

Municipal Code Section 12.60.010 provides regulations for reducing the amount of pollutants that are discharged from the storm drainage system. The storm drain system is for the control of flooding only and the water that enters the drains is not treated before emptying into local creeks that flow to South San Francisco Bay. Regulating pollutants entering the storm drain system is done during construction, by inspecting on-going industrial and commercial facilities, educating business operators, and responding to reports of stills or dumping.

The California Regional Water Quality Control Board also requires that Sunnyvale City facilities reduce the usage of pesticides in order to reduce impacts on urban streams. Sunnyvale has established an integrated pest management policy that significantly restricts the selection of pesticides only to times when their use can be justified, after other options have been considered, and when application methods used will prevent the contamination of storm water and urban streams.

Water Treatment and Usage

Municipal Code Section 12.04.010 provides requirements for water treatment of usage. The Water Pollution Control Plant's mission is to protect public health, safety, property and the quality of the Bay. This is done by treating water from the sewerage system before it is discharged to the Bay. While consistently meeting this goal, the Plant reuses many byproducts of the treatment process. These include producing electricity and mechanical power from waste gases, recovering heat from engines, producing an alternative to soil for daily landfill cover or a soil amendment for agricultural and pasture land, and supplementing the city water supply by producing recycled water distributed through a separate system for non-potable uses (e.g. landscape irrigation).

Landscape Practices

Municipal Code Section 19.38.070 provides landscape standards and requirements. Water conserving plants are to be installed in 70% of all landscaped areas for most multi-family residential, commercial and industrial sites. Additionally, for new parking lots, trees are to be planted and maintained to ensure that at least 50% of the parking area will be shaded within 15 years which reduces the heat island effect.

Air Quality

The Air Quality Sub-Element's goal is to improve Sunnyvale's air quality and reduce the exposure of its citizens to air pollutants. This is achieved through a series of policies and action statements such as promoting spare the air days and nights, reducing automobile emissions through traffic and transportation improvements, and promoting pedestrian, bicycle and transit modes of travel.

Transportation Demand Management

Transportation Demand Management (TDM) is a general term for strategies that result in more efficient use of transportation resources. TDM programs are generally required for all high intensity office and industrial development.

California Title 24 Energy Requirements

The State of California has probably the most stringent energy conservation standards in the country. The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated every few years and most recently in 2001. According to California Energy Commission, the standards (along with standards for energy efficient appliances) have saved more than \$20 billion in electricity and natural gas costs. It is estimated the standards will save \$57 billion by 2011.

DISCUSSION

Extensive policies and ordinances exist to support sustainability and sustainable development in Sunnyvale. However, the City does not have a green building program. Based on staff research, there are two possible approaches: (1) a customized program for Sunnyvale, or (2) adoption of US Green Building Council's (USGBC) program. Several jurisdiction have designed and developed a green building program specific to their jurisdiction. The benefit of this type of program is that it would be specifically tailored to Sunnyvale's goals, needs, and desires. However, this type of program would be very expensive to develop because it would require the hiring of a consultant and extensive staff training and training for the community.

The other option would be to adopt (or modify) the green building program designed by the US Green Building Council (USGBC), dubbed LEED. LEED stands for Leadership in Energy and Environmental Design. The USGBC is a

national coalition of leaders from across the building industry who work together to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The LEED program provides an extensive list of green building design options. Design professionals can choose to implement options that work best for each specific project. It is a performance based program that provides design flexibility for each individual project, rather that a prescriptive program that sets the same requirements for all projects. A rating is given to the project based on the type and number of green building design options achieved. Following is a detailed description of the LEED program.

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

LEED (Leadership in Energy and Environmental Design) was first introduced by the US Green Building Council (USGBC) in 1998. It is a voluntary program based on national standards for developing high-performance, sustainable buildings. The LEED program was created to:

- define "green building" by establishing a common standard of measurement
- promote integrated, whole-building design practices
- · recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on scientific standards, LEED emphasizes state-of-the-art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

LEED offers 69 different credits for new construction and major renovations of existing non-residential buildings and multi-family residential buildings over four stories. LEED does not yet have a program for single-family residential or multi-family residential up to three stories.

The LEED checklist (Attachment B) lists all of the credits available through the program. However, because many of the credits are based on project site or services available to the site, each individual development project will be able to achieve different credits. LEED is a performance based program that provides the project design team the ability to select which credits they will achieve and

how it will be designed. Following is the LEED rating system:

- Certified 26-32 points
- Silver 33-38 points
- Gold 39-51 points
- Platinum 52-69 points

As of August 2003, there are 852 projects registered with the USGBC for LEED certification (140 in California). The majority of these projects are still in the design and construction phase. After the project is completed, the design team submits documentation to the USGBC showing how each credit was obtained and achieved. Once the information has been verified by the USGBC, the LEED certification is awarded. This typically takes about four months after the building is completed. There are a total of 62 projects that have completed the LEED process and earned certification (9 in California). Although this number may appear low, the program has only existed for about five years. Last year alone, 441 buildings (of the total 852) were registered with the intent for future certification.

ALAMEDA COUNTY WASTE MANAGEMENT GUIDELINES

Although LEED does not yet offer a green building program for single-family or multi-family (up to three stories), the are guidelines for single-family homes. The Alameda County Waste Management Authority developed and published *Home Remodeling: Green Building Guidelines*. This is a document designed for use by professional contractors and homeowners to offer the following:

- Cost-effective suggestions to minimize construction-related waste
- Create healthier and more durable homes
- Reduce operating costs for homeowners
- Support local manufacturers and suppliers of resource-efficient building materials
- Methods to reduce the impacts of building communities; including solid waste management, water conservation, energy efficiency and resource conservation.

The practices contained in these Guidelines were selected for their viability in today's market and their ability to promote sustainable building. The Guidelines were developed through a partnership among local developers, architects, contractors, green building experts and staff of the Alameda County Waste Management Authority and Recycling Board. The Table of Contents and Introduction to this document are included as Attachment C for reference to report. complete document this staff The can be found http://www.stopwaste.org/fssearch.html.

WHAT OTHER CITIES ARE DOING

City of San Jose

The City of San José has a Green Building Program that was adopted in 2000. As part of the program, a policy was adopted to incorporate green building principles and practices into all city owned and operated facilities. A modified version of LEED was adopted, dubbed San José LEED, which is the standard LEED program including local amendments. As of July 1, 2002, all City of San José facilities are to be designed to meet the San José LEED Certified rating; however, registration and approval from the USGBC is not required. The San José LEED program uses the same credits and rating system as the model LEED program, but, the City of San Jose requires certain credits be achieved (e.g. storm water management).

The program also encourages green buildings and sustainable development through educational programs, community outreach, and professional staff assistance. Informational links and resources are provided on the City web site (http://www.ci.san-jose.ca.us/esd/GB-HOME.HTM).

City of Pleasanton

The City of Pleasanton adopted an ordinance in 2002 that requires all new buildings over 20,000 square feet of conditioned space to be LEED Certified. Registration and certification with USGBC is encouraged but it is not required. The downtown area and historic buildings are exempt from this ordinance. All buildings are encouraged to be designed to meet the intent of LEED. Informational links and resources are provided on the City web site (http://www.ci.pleasanton.ca.us/planning_commdev.html).

In order to enforce this ordinance, Pleasanton has hired a green building consultant to assist in review of projects to determine if they meet the LEED Certification intent. Additionally, the city provides consultants to work with developers to educate them on the process and requirements. Extensive staff training has also been necessary.

City of Santa Monica

The City of Santa Monica has developed and adopted a city-wide sustainable program. The program includes a series of polices that support a whole city approach to sustainability including green buildings, education, outreach, storm water, transportation, and purchasing. There are various municipal code ordinance and standard development requirements established to achieve the sustainable goals; however, there is not a formal green building program.

monica.ca.us/environment/policy/construction/policies.htm).

City of Portland, Oregon

The City of Portland has also implemented a sustainable development policy that includes energy, solid waste, recycling, and green building components. Portland does not have a green building rating system. The city does have an Office of Sustainable Development with staff who provide assistance to developers to help them find grants and low interest loans for funding green building projects.

City of Seattle, Washington

In 1998 the City of Seattle developed a Sustainable Building Policy that requires all new City-funded projects and renovations over 5,000 square feet of occupied space to achieve a LEED Silver rating. All capital construction which falls under this policy is budgeted to meet at minimum the LEED Silver rating. Budget planning and life cycle cost analysis to achieve a higher rating of Gold or Platinum is encouraged. Additionally, the policy strongly encourages staff to attend LEED training. Other than standard municipal code requirements, Seattle does not mandate green building or LEED certification for private development.

Seattle also has a sustainable building program which provides information to the community about green building benefits and provides resources for materials. Informational links and resources are provided on the City web site (http://www.ci.seattle.wa.us/dclu/Sustainability/).

CASE STUDIES

The Sunnyvale Municipal Code has many requirements for development that are similar to many of the LEED credits. In order to determine the level that new buildings in Sunnyvale may achieve, two consultants were hired to analyze two typical new buildings. Determinations were made as to the number of LEED credits each building may earn under the existing conditions and the costs associated with each credit. The new Senior Center building and the office building at Mathilda Avenue and Java Drive (occupied by Yahoo!) were selected for the case studies.

The intent of these case studies was to determine how "typical" new Sunnyvale buildings perform in relation to LEED and what the cost implications would be if the same projects were required to meet the various LEED levels.

Each study was conducted based on readily accessible information and the cost estimates are based on construction costs. Additional design costs and the administrative costs associated with submitting an application to the USGBC

and potential construction delays are not included in the studies. For reference, it is staff's understanding that design costs are increased by about 1% for designing a LEED building. Additionally, the total design costs are generally 15% of the total building construction. Therefore, the additional LEED building design costs are about 0.15% of the construction cost.

Senior Center

The Steinberg Group (who were the project architects for the Senior Center) completed the case study. The Steinberg Group has associates on staff who are LEED Accredited Professionals who were able to complete this study. The study results (Attachment D) are broken into five sections and the following table summarizes the findings:

Sunnyvale Senior Center

Evaluation Level Credits Estimated Additional Construction Cost (% of the total construction cost)

Existing Building 10

LEED Certified 26 \$24,200 (0.3%)

LEED Silver 33 \$75,350 (0.9%)

LEED Gold 39 \$157,920 (2.0%)

LEED Platinum 52 \$1,154,020 (14.4%)

It is important to note that for the base building, the photovoltaic system installed at the Senior Center was not included in the analysis. This is because this type of system in fairly expensive to install (\$598,000 at the Senior Center) and is not typical in a standard City building. If the photovoltaic system were included, the base building would have achieved 13 LEED credits. The credits associated with the photovoltaic system were applied to the LEED Platinum level.

Office Building

RMW Architects designed the site and shell of the office buildings at the southeast corner of Mathilda Avenue and Java Drive (occupied by Yahoo!). They also have architects on staff who are LEED Accredited and were able to complete the case study for these buildings. Although RMW Architects did not design the interior tenant improvements for these buildings, the study does include basic assumptions about the costs and materials used.

The study received from RMW does not include the costs of the interior tenant improvements. However, staff believes that the tenant improvement costs should be included because they are part of the total construction costs of the buildings. Staff estimated the tenant improvement costs to be about \$9 million dollars. The following table summarizes the study results (Attachment E) including the estimated tenant improvement costs:

Sunnyvale Office Building

Evaluation Level
Credits
Estimated Additional Construction Cost
(% of the total construction cost including tenant improvements)

Existing Building 8

LEED Certified 32 \$492,000 (2.1%)

LEED Silver 33 \$742,000 (3.1%)

LEED Gold 39 Cost Prohibitive

LEED Platinum 52 Not Attainable

STAFF FINDINGS

The intent of sustainable development is to create a built environment that more efficiently uses natural resources. As a municipality, sustainable development for individual projects is an attainable goal and will contribute to reduction in regional usage of natural resources.

Sunnyvale already has many sustainability and sustainable development standards which are similar to many other local jurisdictions. Many existing policies and ordinances improve and encourage sustainability. However, the City does not have a single source or location to provide sustainability information or direct the community to various resources. To accomplish that, staff has developed a web page that explains the existing sustainable programs and standards and provides resources and links to other green building agencies and information (http://sunnyvale.ca.gov/Departments/Community+Development/Planning+D ivision/Planning-Green+Buildings.htm).

Based on staff research, the one area for improvement is a green building program. Staff is recommending the adoption of the LEED program. LEED is an established and proven program for the design and construction of green buildings. LEED is a performance based program that allows the project design team to select which credit options best fit into each specific project. Additionally, because LEED is a national program, many design professionals are already familiar with it and understand how to make it work. The USGBC also provides many support services for LEED such as training, materials, and professional accreditation.

After the research and discussion with industry professionals and the community, staff has found that everyone involved embraces the concepts of green buildings and sustainable development. There are, however, competing values in terms of costs and environmental benefits. Although there are many statistics provided from green building advocacy groups that show operating cost savings for green buildings, the industry and LEED program are relatively

new and not many members of the development community have had an opportunity to be directly involved in a green project.

After many discussions with the development community, staff believes that the comfort level of understanding of green buildings and their benefits has increased. However, there is still a caution in terms of the increased costs and time.

Given the current economic conditions, it appears that it will be some time before staff receives applications for development of new industrial buildings. Based on that information and feedback from the development community, staff does not believe that new mandates, which could further delay new development, are appropriate at this time. In order for an new ordinance to be meaningful and effective, development must occur. If regulations hinder new development, the benefit of the regulation will not be realized.

Therefore, staff is recommending a phased approach to green buildings and implementation. The staff recommendations are based on providing information, education, and incentives for green building.

STAFF RECOMMENDATIONS

Public Facilities

Staff recommends approving a Council Policy (Attachment F) that encourages new and remodeled City buildings within the City of Sunnyvale incorporate the following sustainable development and design principles:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality

The policy also includes specific statements about incorporating sustainable design practices in new and remodeled City facilities, to the extent practicable (e.g. carpeting, paint, recycled content materials, environmentally-friendly cleaning products, concrete, Certified Wood, etc.).

The policy also encourages additional and on-going staff training as well as education and outreach to the community. Due to the current budget situation and the staff time needed to modify the existing specifications, it is anticipated that this policy will be phased in over the next few years.

Because there are no new City facilities planned for the near future, the policy does not contain any specific requirements for LEED standards for new City facilities. However, prior to the planning or design of any new City facility,

LEED certification will need to be considered.

Private Development (not including Moffett Park)

In accordance with the recommended policy, all private development will be encouraged to incorporate green building features and practices. The Alameda County Waste Management Authority and LEED will be used as guidelines. Staff is also recommending an ordinance (Attachment G) that will provide an incentive for private development to be LEED Certified with the USGBC.

Development within the industrial zoning districts will be allowed an additional 5% FAR above that allowed by the existing zoning district and General Plan, without a Use Permit (unless otherwise required by the SMC), when all of the following conditions are met:

- The building is designed to a LEED Certified building or a higher level;
- ◆ The building is registered and intended to be certified by the US Green Building Council (USGBC);
- ♦ A LEED accredited professional is required on the design team; and
- ♦ The entire project site has a Transportation Demand Management (TDM) program that shows traffic trip rates are not greater than the base FAR would generate.

This ordinance would not apply to properties with an Industrial to Residential (ITR) combining district or properties within the Moffett Park Specific Plan.

Staff has reviewed the possibility of providing additional FAR incentives for buildings rated as LEED Silver, Gold, or Platinum. However, as buildings are planned at significantly higher intensities than allowed by right, the environmental impacts also increase and should be fully evaluated for potential impacts. Proposed development significantly above the allowed level may be of concern to the community; therefore, staff is not recommending removing the opportunity for a public hearing at this time.

Also included in the draft Council Policy is encouragement for residential development to use the Alameda County Waste Management Authority's *Home Remodeling: Green Building Guidelines* as a resource for green building techniques and practices. The policy also encourages the use of the *Guidelines* for additions and remodels of existing residential buildings.

As the sustainable development and green building industry and standards are relatively new and changing rapidly, staff will continue to monitor and report back to Council with updates and proposed modifications in about five years. As new LEED standards and programs are developed for retail and housing, staff will analyze these programs and include them in future reports.

Moffett Park

The specific requirements for Moffett Park area will be determined with the follow-up of the Moffett Park Specific Plan. Following are preliminary recommendations that staff has discussed. These recommendations will be further refined into development standards for the final Moffett Park Specific Plan document that will be reviewed in its entirety at an independent public hearing.

Preliminary Staff Recommendation

Development above standard FAR limits (e.g. 50% FAR in the MP-TOD and 35% FAR in the MP-I, up to the maximum FAR levels) will not require a public hearing for additional floor area approval (site plan and architectural approval from the Planning Commission will still be required) when the following conditions are met:

Within the first five years after adoption:

- Meet the design intent of a LEED Certified building by demonstrating to City staff which design/construction measures are included to result in at least 26 LEED credits.
- A Certified Accredited LEED Professional must be on the design team.
- Partial credits may be considered (e.g. if energy savings is 8% vs. 10% required for the credit, then 0.8 credits may be given).
- Develop a monetary incentive for the first building in Moffett Park (in the initial 5 years) to seek formal LEED Certification.

After 5 years:

- Meet the requirements for a LEED Certified building for development above standard FAR
- Register the Building with the USGBC
- Submit LEED Checklist to USGBC
- Submit Certification request to USGBC after building is constructed
- A Certified Accredited LEED Professional must be on the design team.

After the initial five year period, all development of 10,000 square feet or more, regardless of the FAR, shall be designed to meet the intent of a LEED Certified building by demonstrating to City staff which design/construction measures are included to result in at least 26 LEED credits.

FISCAL IMPACT

The intent of the staff recommendation is to have minimal fiscal impact on the City. The proposed policy and incentive based ordinance will not have a significant fiscal impact. Staff review and research for the encouragement and analysis of green buildings will take additional staff time when reviewing

development projects.

The staff training and research of alternative materials for facility maintenance will require the usage of staff time and expenses. This will be applicable for Community Development, Parks and Recreation, and Public Works staff. Staff estimates approximately \$825 per person to receive full LEED training and certification plus 10 hours of staff time. Given the current training budget for the Community Development Department, staff training will take several years. However, if Council would prefer an accelerated training schedule, additional resources would be needed. If this is the direction from Council, the costs could be considered with the budget in June.

PUBLIC CONTACT

As part of the outreach and research for this study staff from three City departments (Public Works, Parks and Recreation, and Community Development) coordinated and participated in the following activities:

- Toured Bay Area green buildings.
- Met green building specialists, consultants, developers, contractors, and staff members from other cities.
- Met with developers, property owners, architects, business owners, and facility managers. Approximately 4 developers participated in these discussions.

Notification of the Planning Commission meeting for this item is part of the standard agenda publication.

Notice of Public Hearing Staff Report Agenda

Published in the *Sun* newspaper

Posted on the City of Sunnyvale's Website

Provided at the Reference Section of the City of Sunnyvale's Public Library Posted on the City's official notice bulletin board

City of Sunnyvale's Website

ALTERNATIVES

- 1. Adopt the Council Policy and ordinance as attached
- 2. Adopt the Council Policy and ordinance with modifications
- 3. Direct staff to continue to monitor the green building industry, what other cities do, and the LEED program and report back to Council with updates and possible new recommendations within five years or sooner in necessary
- 4. Take no action

RECOMMENDATION

Staff recommends #1 and #3. Prepared by: Erin Walters, Diana Perkins, Associate Planner Plan Checker Reviewed by: Trudi Ryan, Ali Fatapour, Planning Officer Chief Building Official Robert Paternoster, Director of Community Development Approved by: Amy Chan Acting City Manager

Attachments

- A. Study Issue Paper
- B. LEED Checklist
- C. Alameda County Waste Management Guidelines (Introduction and Table of Contents)
- D. Case Study Senior Center
- E. Case Study Office Building
- F. Draft Council Policy
- G. Draft Ordinance

PROPOSED COUNCIL STUDY ISSUE

For Calendar Year: 2002

New X

Previous Year (below line/defer)

Issue Title: Energy Regulations and Green Building Policies and Guidelines

Lead Department: Community Development

General Plan Element or Sub-Element: Land Use and Transportation Element

1. What are the key elements of the issue? What precipitated it?

The key elements of this issue are to minimize negative energy related environmental impacts associated with building design, construction and operation. These impacts include utilization of resources such as building materials, energy loss, water consumption, production of waste and increased urban temperatures due to heat generation.

Precipitate by a more conscious environmental community and the recent energy crisis.

2. How does this relate to the General Plan or existing City Policy?

Land Use and Transportation Element

C4.4: Encourage sustainable industries that emphasized resource efficiency, environmental responsibility, and the prevention of pollution and waste.

3. Origin of issue:

Councilmember:	Valerio
General Plan:	
Staff:	
Board or Commis	sion:

Arts Housing & Human Svcs

Bicycle Advisory Library

Bldg. Code of Appeals Parks & Rec.

CCAB Personnel

Heritage & Preservation Planning

Board / Commission Comment:

X

	Planning	Commis	sion ranke	ed	1	_ of	6		
١.	Multiple Year F	Project?	No	Expecte	ed Year o	of Con	npleti	on	2002
5.	Estimated wor	k hours for c	ompletion	of the stu	ıdy issue) .			
	(a) Estimated	work hours fr	om the lea	d departr	nent			500	
	(b) Estimated	work hours fr	om consul	tant(s):				0	
	(c) Estimated	work hours fr	om the City	y Attorne	y's Offic	e:			
	(d) List any otl hours:	ner departmei	nt(s) and n	umber of	work				
	Departmen	t(s): Public \	Vorks					200	
	Total Estimate	d Hours:						700	
ô.	Expected part	icipation invo	lved in the	study is:	sue proc	ess?			
	(a) Does Coun	cil need to ap	prove a w	ork plan?	•		Yes		
	(b) Does this is Board/Com	•	eview by a	ı			Yes		
	If so, wh	ich Board/Co	mmission?	•					
	Planning,	possible othe	rs						
	(c) Is a Counci	l Study Sessi	on anticipa	ated?			Yes		
	(d) What is the	public partic	ipation pro	cess?					
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Extensive outreach to the development and construction community. Close coordination with the Chamber of Commerce and Santa Clara County Manufacturing Group. Typical notification for Planning Commission and City Council public hearings.

7. Estimated Fiscal Impact:

ENERGY REGULATIONS AND GREEN BUILDING POLICIES	S AND GUIDELINES-CONT.	PAGE 3 OF 3
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Cost of Study	\$ 0
Capital Budget Costs	\$ 0
New Annual Operating Costs	\$ 0
New Revenues or Savings	\$ 0
10 Year RAP Total	\$ 0

8. <u>Staff Recommendation</u>

X Recommended for Study
Against Study
No Recommendation

Explanation of Staff Recommendation (unless No Recommendation)

Staff recommend a proactive approach to this issue recognizing energy saving benefits that may accrue to the community over time.

City Manager	Date



Version 2.1 Registered Project Checklist

Project Name City, State

Yes	?	No			City, State
	***********		Sustai	nable Sites	4.4
			Prereq 1	Erosion & Sedimentation Control	Required
			Credit 1	Site Selection	1
			Credit 2	Urban Redevelopment	1
			Credit 3	Brownfield Redevelopment	1
			Credit 4.1	Alternative Transportation, Public Transportation Access	1
			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
			Credit 4.3	Alternative Transportation, Alternative Fuel Vehicles	1
			Credit 4.4	Alternative Transportation, Parking Capacity and Carpooling	1
			Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space	1
			Credit 5.2	Reduced Site Disturbance, Development Footprint	1
			Credit 6.1	Stormwater Management, Rate and Quantity	1
			Credit 6.2	Stormwater Management, Treatment	1
				Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1
			Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	1
			Credit 8	Light Pollution Reduction	1
Yes	?	No			
			Water	Efficiency	E - Espoins
			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
			Credit 2	Innovative Wastewater Technologies	1
			Credit 3.1	Water Use Reduction, 20% Reduction	1
			Credit 3.2	Water Use Reduction, 30% Reduction	1
Yes	?	No			
	•••••		Eliche)	/ & Atmosphere	III 7 Pants
		•	Prereq 1	Fundamental Building Systems Commissioning	Required
			Prereq 2	Minimum Energy Performance	Required
			Prereq 3	CFC Reduction in HVAC&R Equipment	Required
			Credit 1	Optimize Energy Performance	1 to 10
			Credit 2.1	Renewable Energy, 5%	1
			Credit 2.2		1
			Credit 2.3	Renewable Energy, 20%	1
			Credit 3	Additional Commissioning	1
			Credit 4	Ozone Depletion	1
			Credit 5	Measurement & Verification	1
			Credit 6	Green Power	1

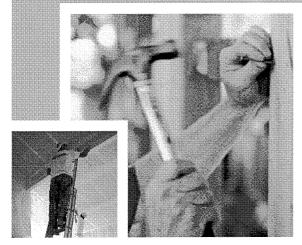
Yes ? No

Yes ?	No	Materia	als & Resources	C Foress
		Prereg 1	Storage & Collection of Recyclables	Required
		Credit 1.1		. 1
			Building Reuse, Maintain 100% of Shell	1
		Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell	1
		Credit 2.1	Construction Waste Management, Divert 50%	1
		Credit 2.2	Construction Waste Management, Divert 75%	1
			Resource Reuse, Specify 5%	1
			Resource Reuse, Specify 10%	1
		Credit 4.1	Recycled Content, Specify 5% (post-consumer + ½ post-industrial)	1
			Recycled Content, Specify 10% (post-consumer + ½ post-industrial)	1
			Local/Regional Materials, 20% Manufactured Locally	1
		Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally	1
		Credit 7	Rapidly Renewable Materials Certified Wood	1
Yes ?	Na.	Credit 7	Certified Wood	•
Yes ?	No	Indoor	Environmental Quality	15 Peints
		Prereq 1	Minimum IAQ Performance	Required
		Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
		Credit 1	Carbon Dioxide (CO ₂) Monitoring	1
		Credit 2	Ventilation Effectiveness	1
		Credit 3.1	Construction IAQ Management Plan, During Construction	1
		Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
		Credit 4.1	3 ,	1
			Low-Emitting Materials, Paints	1
			Low-Emitting Materials, Carpet	1
			Low-Emitting Materials, Composite Wood & Agrifiber	1
		Credit 5	Indoor Chemical & Pollutant Source Control	1
			Controllability of Systems, Perimeter	1
		Credit 6.2	,	, ' 1
			Thermal Comfort, Comply with ASHRAE 55-1992 Thermal Comfort, Permanent Monitoring System	1
	H	Credit 8.1		1
		Credit 8.2		1
Yes ?	No	0.00	Daying in a viole, viole is so as a spaces	
		Inneva	tion & Design Process	- IdPoints
		Credit 1.1	Innovation in Design: Provide Specific Title	1
	H		Innovation in Design: Provide Specific Title	1
	\Box		Innovation in Design: Provide Specific Title	1
			Innovation in Design: Provide Specific Title	1
		Credit 2	LEED™ Accredited Professional	1
Yes ?	No			
		Project	t Totals (pre-certification estimates)	69 Points

Page 1 of 5

HOME REMODELING

GREEN BUILDING GUIDELINES





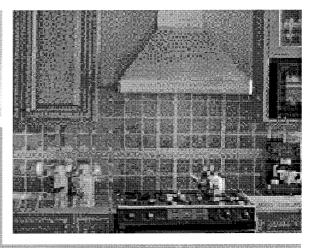


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	elements of Green Building.	
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2. GREEN BUILDING METHODS AND MATERIALS This section provides more detailed descriptions of Green Building practices, information on material applications as well as the environmental benefits. A. Site B. Equipolation

12 B. Foundation C. Structural Frame 13 D. Exterior Finish 15 17 E. Plumbing F. Electrical 19 20 G. Roofing H. Appliances 21 1 Insulation 22 J. Windows 24 K. Heating, Ventilation and Air Conditioning (HVAC) 26 L. Renewable and Solar Energy 30 M.Indoor Air Quality / Finishes 32 N. Flooring 35

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The checklist is intended to serve as a tool for project	
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ATTACHMENT C

Introduction

Green building is just applied common sense. To demystify the process and move forward with your construction project, it is helpful to think of green building as the convergence of three fundamental objectives:

- 1 Conserve natural resources
- 2 Increase energy efficiency
- 3 Improve indoor air quality

Natural Resource Conservation

Conventional building practices consume large quantities of wood, plastic, cardboard, paper, water and other natural resources that lead – unnecessarily – to their depletion.

For example, wood is one of the most common building materials, but is often used wastefully. We have already harvested 95% of the nation's old-growth forests – a trend that simply cannot continue. Engineered lumber products such as wood I-joists, wood fiber laminates and oriented strand board, utilize fast growing farm trees as an alternative to old-growth forests. These products can use as little as 50% of the wood fiber to perform the same structural functions and are typically stronger, straighter and lighter than solid-sawn lumber.

Remodelers have a rapidly expanding range of green building materials from which to choose. Recycled-content decking, insulation, reclaimed lumber and other products divert waste from landfills, while providing quality and durability that often exceed conventional materials. For example, decking material made out of recycled plastic resins mixed with wood waste fibers can last up to five times longer than wood decks, and never need to be treated or painted.

Water conservation is another important issue. Wise water usage reduces the strain on resources as well as lowers expenses. Today, remodelers can take advantage of a new generation of high-efficiency washers, dishwashers, and landscape water management systems.



CONTRACTOR TIP

PROVIDE A HOMEOWNER'S MANUAL OF PRODUCTS INSTALLED

Provide homeowners with a product manual that describes the benefits of the various green materials installed and how to maintain them. Informing the homeowner about the green features and products will ensure the effective use and maintenance of the features for many years after the project is completed.



Energy Efficiency

Energy efficiency is a cornerstone of any green building project. Generation and use of energy are major contributors to air pollution and global climate change. Improving energy efficiency and using renewable energy sources are effective ways to improve air quality and reduce the impacts of global warming.

Improving energy efficiency is also an economically effective choice for consumers. Lowering utility expenses allows residents to enjoy the financial benefits year after year.

The first step to increase energy efficiency is to add insulation and weather stripping wherever possible, install double-glazed/low-E windows and upgrade to high-efficiency appliances. Other energy upgrades/choices include installing solar water heaters, photovoltaic panels, and purchasing "green power" generated from renewable sources like the sun, wind and biomass (when available).

Indoor Air Quality

The United States Environmental Protection Agency (EPA) reports that the air in new homes can be ten times more polluted than outdoor air. According to the New England Journal of Medicine, 40% of children will develop respiratory disease, in part, due to the chemicals in their homes. Poor indoor air quality is caused by the offgassing of chemicals found in many building materials as well as mold and mildew that build up in homes due to poorly designed and maintained heating and cooling systems.

One of the most common indoor pollutants is formaldehyde, a suspected human carcinogen. Kitchen cabinets, countertops, shelving and furniture are typically made from particleboard held together by formaldehyde-based adhesives. The formaldehyde is released into the home for years after these products have been installed. Many paints and floor finishes also contain unhealthy volatile organic compounds (VOCs). That "new house smell" is actually the odor of these volatile compounds offgassing and is a telltale sign that there are harmful chemicals in the indoor environment.

The building products industry has responded to these indoor pollution problems by developing alternative paint, finish, and adhesive products. For example, solvent-free adhesives used in flooring and countertops can eliminate many of the suspected and known human carcinogens. Paints, varnishes, and cleaners that don't utilize volatile compounds are now commonly available from most major manufacturers at costs comparable to conventional products.

In addition to the growing number of readily available and cost-effective green materials – an increasing number of builders and remodelers are also using natural building materials such as straw-bale, rammed earth, adobe and cob. While less common in their use, natural building products have a positive impact on the environment as they are renewable and abundant; energy-efficient in production, transport and use; non-polluting; durable and long lasting.

Page 5 of 5

Benefits of Green Building

There are many reasons to build green. These include a concern for the environment, an interest in building more efficiently, health considerations or a desire to create an environmentally friendly image for your business. By applying a sustainable perspective to design, construction and remodeling, green building brings the benefits of resource conservation, energy savings and healthy living.

Each of the features listed in these Green Building Guidelines benefit the environment by addressing one or more of the following: resource conservation, energy efficiency, indoor air quality.

Cost Considerations

While green building and its environmental benefits are becoming more mainstream, it is commonly assumed that green building features and products translate into additional costs. What is often overlooked is the added value that green building contributes to the home: energy-efficiency, improved indoor air quality, healthier homes for the family, and durability. These Guidelines recommend methods and materials that range in cost–some of them cost no more or even less than conventional options.

Often the homeowner focuses on the "up-front" costs (materials and installation) to incorporate green features into a home. When other factors are considered, such as lower maintenance and operation costs, many of the recommended strategies in these Guidelines offer tangible economic benefits to the homeowner. Energy upgrades alone usually result in a payback through lower monthly energy costs.

When considering green building measures, it is very important to balance product and installation costs with other significant benefits such as energy savings, increased durability, enhanced air quality and healthier homes for occupants.



Page of D

The Steinberg Group

LEED STUDY FOR THE CITY OF SUNNYVALE

Case Study: Sunnyvale Senior Center
October 27, 2003

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San Jose, California

95110

408.295.5446

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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
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SS 6.2	Stormwater Management, Treatment	-	1	\$0	\$0	\$0	0.0%	0.0% No Additional Cost - Implement EPA's Best Mgmt Practices Post-Construction
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EA Prereq 3	CFC Reduction in HVAC&R Equipment	0	0	\$0	\$0	\$0	0.0%	0.0% Incorporated in Original Design and Base Bid
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EA 1.5	Optimize Energy Performance, 60% New / 50% Existing	2						
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EA 2.3	Renewable Energy, 20%	-						The state of the s
EA3	Additional Commissioning	1						98
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EA 6	Green Power	1						Non Applicable at Senior Center / Community Center Site
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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
LEED CERTIFIED SCENARIO - 26 POINTS MINIMUM
with Estimated Associated Building Costs

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Description	MATTEBIALS & BESOURCES	Storage & Collection of Recyclables	Building Bense Maintain 75% of Evisting Shall	Building Reuse, Maintain 100% of Existing Shell	Building Beuse, Maintain 100% of Existing Shell & 50% Non-Shell	Construction Waste Management Divert 50%	Construction Waste Management Divert 75%	Besource Reise Specify 5%	Despired Dairo Chapit, 100/	Designation nearse, opening 10%	Hecycled Content, Specify 25%	Hecycled Content, Specify 50%	Local/Regional materials, 20% Manufactured Locally	Local/Regional materials, of 20% Above, 50% Harvested Locally		Rapidly Renewable Materials	Certified Wood	MR SUBTOTAL		INDOOR ENVIRONMENTAL QUALITY	Minimum IAQ Performance	Environmental Tobacco Smoke (ETS) Control	Carbon Dioxide (CO2) Monitoring Increase Ventilation Effectiveness	Increase Ventilation Effectiveness	Construction IAQ Management Plan, During Construction	Construction IAQ Management Plan, Before Occupancy	Low-Emitting Materials, Adhesives & Sealants	Low-Emitting Materials, Paints	Low-Emitting Materials, Carpet	Low-Emitting Materials, Composite Wood	Indoor Chemical & Pollutant Source Control	Controllability of Systems, Perimeter	Controllability of Systems, Non-Perimeter	Thermal Comfort, Comply with ASHRAE 55-1992	Thermal Comfort, permanent Monitoring System	Daylight & Views, Daylight 75% of Spaces	Daylight & Views, Views for 90% of Spaces	EQ SUBTOTAL		INNOVATION & DESIGN PROCESS	Innovation in Design: Specific Title	LEED Accredited Professional	ID SUBTOTAL			TOITALS				
LEED Credit	MATERIALS	MR Prereg 1	MB 1.1	MR 1.2	MR 1.3	MR 2.1	MROO	MB 3 1	MB30	MD 4 4	- KIN 4.	MH 4.7	MR 5.1	MR 5.2	,	MR 6	MR 7			INDOOMEN	EQ Prereq 1	EQ Prereq 2	EQ 1	EQ 2	EQ 3.1	EQ 3.2	EQ 4.1	EQ 4.2	EQ 4.3	EQ 4.4	EQ 5	EQ 6.1	EQ 6.2	EQ 7.1	EQ 7.2	EQ 8.1	EQ 8.2			INNOVATION		ID 1.2		4	ID 2					

ATTACHMENT D
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LEED STUDY FOR CITY OF SUNNYVALE Case Study. Sunnyvale Senior Center

R SCENARIO - 33 POINTS MINIMUM	stimated Associated Building Costs
LEED SILVER SCENARIO	with Estimated Assoc

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	Comments			0.0% Incorporated in Original Design and Base Rid	// Incorporated in Original Design and Base Bid	Non Amilicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	0.0% Incorporated in Original Design and Base Bid		7 Two dual electric vehicle charging stations	0.0% No Additional Cost	0.0% No Additional Cost	Non Applicable considering Senior Center Program		0.0% No Additional Cost - Implement EDA's Bast Mamt Drawtices Boot Contraction	or or regional cost implement LLA's Destingint Flactices Fost-Construction	6 No Additional Cost	Non Applicable at Senior Center / Community Center Dublic Barking Lot				0.0% No Additional Cost	Mos Assistant 1931	Non Applicable at Senior Center / Community Center Park in California Climate	Non Applicable at Senior Center / Community Center Site	0.0% No Additional Cost - high efficiency fixtures		,0		Commissioning Consultant contracted by Commission	0.0% Incorporated in Original Decign and Book Bid	0.0% Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	months and management pengli and page big								0.1% Additional Cost	T		and a supplied of the supplied	
% Increase	to Base Bid	(\$7,988,000)								0.1%						200	%0.0		0.1%									%0.0		%8.0											0 40	- 0	2		0.4%	
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	Description		200	_	Site Selection	Urban Redevelopment	Brownfield Redevelopment	Alternative Transportation, Public Trans. Access	Alternative Transportation, Bicycle Storage & Changing Rm.	Alternative Transportation, Alternative Fuel Refueling Stations	Alternative Transportation, Parking Capacity	Reduced Site Disturbance, Protect of Restore Open Space	Reduced Site Disturbance, Development Footprint	Stormwater Management, Rate and Quantity	Stormwater Management, Treatment	Landscape & Exterior Design to Reduce Heat Islands, Non-roof	Landscape & Exterior Design to Reduce Heat Islands, Roof	Light Pollution Reduction	SS SUBTOTAL		IGIENCY.	Water Efficient Landscaping, Reduce by 50%	Water Efficient Landscaping. No Potable Use or No Irrigation	Innovative Wastewater Technologies	Water Use Bedintion 20% Bedintion	Water Hea Baduction 30% Baduction	WE CIBTOTAL	12.000.000	ENERGY & ATMOSPHERE	_	Minimum Energy Performance	CFC Reduction in HVAC&R Equipment	Optimize Energy Performance, 20% New / 10% Existing	Optimize Energy Performance, 30% New / 20% Existing	Optimize Energy Performance, 40% New / 30% Existing	Optimize Energy Performance, 50% New / 40% Existing	Optimize Energy Performance, 60% New / 50% Existing	Renewable Energy, 5%	Renewable Energy, 10%	Renewable Energy, 20%	Additional Commissioning	Ozone Depletion	Measurement & Verification	Green Power	EA SUBTOTAL	
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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
LEED SILVER SCENARIO - 33 POINTS MINIMUM
with Estimated Associated Building Costs

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	Comments		Incorporated in Original Design and Base Rid	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Incorporated in Original Design and Rase Rid	No Additional Cost		Non Applicable at Soulor Contor / Community Contor	No Additional Oast	o Auditorial Cost.	Non Applicable at Senior Center / Community Center Sita	Non Applicable at Senior Center / Community Center Site	Bamboo flooring @MP Room, Lobby, Corridors & Lounge, Linoleum @ Program	Rooms - Need 5% of total building materials cost for credit					Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid		No Additional Cost	Filters & mitigation measures for adjacent buildings (Recreation Bidg.)	Supervision of Building Flush Out	No Additional Cost	No Additional Cost	No Additional Cost	o Auditional Cost		Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Increase storefront glazing +70 SF, add (3) 4'x4' horizontal skylights	Incorporated in Original Design and Base Bid				Ociolo III de concational Display	Develop Maintenance Program using Environmental cleaning materials	Substantially exceed a LEED performance credit	Agracated in Ocializa Basel	inculporated in Original Design and Base Bid			
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Description				Building Bense, Maintain 100% of Existing Shell	Building Dame Maintain 100% of Existing Shell	Duriding Reuse, Maintain 100% of Existing Shell & 50% Non-Shell	Construction Waste Management, Divert 50%	Construction waste Management, Divert 75%	Hesource Heuse, Specify 5%	Hesource Reuse, Specify 10%	Recycled Content, Specify 25%	Recycled Content, Specify 50%	Local/Regional materials, 20% Manufactured Locally	Lucarnegional materials, of 20% Above, 50% Harvested Locally	Rapidly Renewable Materials	Certified Wood	MR SUBTOTAL		INDOOR ENVIRONMENTAL QUALITY		Environmental Tobacco Smoke (ETS) Control	Carbon Dioxide (CO2) Monitoring Increase Ventilation Effectiveness	Increase Ventilation Effectiveness	Construction IAQ Management Plan, During Construction	Construction IAQ Management Plan, Before Occupancy	Low-Emitting Materials, Adhesives & Sealants	Low-Emitting Materials, Paints	Low-Emitting Materials, Carpet	Low-Emitting Materials, Composite Wood	Indoor Chemical & Pollutant Source Control	Controllability of Systems, Perimeter	Controllability of Systems, Non-Perimeter	Thermal Comfort, Comply with ASHHAE 55-1992 Thermal Comfort, Permanent Meditoring States	Davlight & Views, Davlight 75% of Spaces	Daylight & Views, Views for 90% of Spaces	EQ SUBTOTAL		INNOVATION & DESIGN PROCESS	Innovation in Design: Specific Title	Innovation in Design: Specific Title	Innovation in Design: Specific Title	Innovation in Design: Specific Title	LEED Accredited Professional	ID SUBTOTAL			
LEED Credit	Sec. Contract	MAILEHIAL	MA TIGIES	MB 1.2	MD 1.5	5. 00%	MIN 6.	MH 2.2	MHG	MH 3.2	MH 4.1	MR 4.2	MR 5.1	2.6 חווו	MR 6	MR 7			INDOOR EN	EQ Prereq 1	EQ Prereq 2	EQ 1	EQ 2	EQ 3.1	EQ 3.2	EQ 4.1	EQ 4.2	EQ 4.3	EQ. 4.4	EQ 5	EQ 6.1	EQ 5.2	FO 7.9	EQ 8.1	EQ 8.2			INNOVATION	0.1.1	ID 1.2	ID 1.3	ID 1.4	ID2				

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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
LEED GOLD SCENARIO - 39 POINTS MINIMUM
with Estimated Associated Building Costs

Conter Cost Mark Up Cost (\$7,988.00)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Possible LEED	Potential for Senior	Estimated Material	15% Contractor	Total	% Increase	
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Fig. 1 1 1 1 1 1 1 1 1 1		-						Non Applicable at Senior Center / Community Center Site
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ation 1 1 1 50 50 50 0.07s, No Additional Cost 1 1 1 50 50 50 50 0.07s, No Additional Cost 1 1 1 50 50 50 50 0.07s, No Additional Cost 1 1 1 51 515,400 52,310 517,710 0.2% High efficiency flow flow plumbing fixtures and sensors 2 2 2 50 50 50 50 0.07s, Incorporated in Original Design and Base Bid 2 2 2 50 50 50 50 0.07s, Incorporated in Original Design and Base Bid 2 2 2 50 50 50 50 0.07s, Incorporated in Original Design and Base Bid 2 3 \$10,000 \$50 \$510,000 0.1% Additional testing and reports - Commissioning Consultant Contracted by Owner 2 2 50 50 50 50 0.07s, Incorporated in Original Design and Base Bid 2 3 \$10,000 \$50 \$510,000 0.1% Additional testing and reports - Commissioning Consultant Contracted by Owner 2 5 50 50 50 50 50 50 50 50 50 50 50 50 5		14	6	\$30,400	\$4,560	\$34,960		The state of the s
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LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
LEED GOLD SCENARIO - 39 POINTS MINIMUM
with Estimated Associated Building Costs

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Comments			0.0% Incorporated in Original Design and Base Bid	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Incorporated in Original Design and Base Bid	0.0% No Additional Cost		Non Applicable at Senior Center / Community Center Site	No Additional Cost	Dromiting for high species of the sp	Mon A mile that the content materials such as ceiling tiles, & ceramic tile	Not Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Bamboo flooring @MP Room, Lobby, Corridors & Lounge, Linoleum @ Program Booms - Need E%, of total building motorials and to accula	TOOMS - NEED 5 /6 OF TOTAL DURAING INATERIALS COST FOR CREDIT			Incomorated in Original Design and Base Bid	Incomorated in Original Design and Rase Rid		No Additional Cost	Filters & mitigation measures for adjacent buildings (Recreation Bldn.)	Supervision of Building Flush Out	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	Entryway grilles/grates at Main & Patio Doors	Operable windows @ bottom pane of all aluminum storefront windows	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Increase storefront glazing +70 SF, add (3) 4'x4' horizontal skylights	incorporated in Original Design and base bid	Pa			Develon Maintenance Program using Environmental algonias materials	nar	Constitution of the Parish and the P	0.0% Incorporated in Original Design and Base Bid			of	
Estimated % Cost	Increase		0.0%				%0:0	%0.0			%00	/000	0.5%			%) (9/0.0	0.2%		%0 0			0.0%	0.1%	0.1%	0.0%	%0.0	%0.0	%0.0	0.1%	0.1%	%0.0	%0.0		0.1%		0.3%		0.0%		0.1%		0.0%	0.1%			题 \$144,000 警 \$13,920 影響 \$157,920 學際 \$150,000
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Possible LEED	Points		0	-	-	-	-	-	-	-	-	-	- -	- -	_	•	_	13		0	0		-	-	1	1	-	-	-	-	-	-	_ ,	_ .	- -	15			-	-	-	-	-	5			69
Description	WATER BESCHIPE STATE OF THE STA		MR Prereq 1 Storage & Collection of Recyclables	Building Reuse, Maintain 75% of Existing Shell	Building Reuse, Maintain 100% of Existing Shell	Building Reuse, Maintain 100% of Existing Shell & 50% Non-Shell	Construction Waste Management, Divert 50%	Construction Waste Management, Divert 75%	Resource Reuse, Specify 5%	Resource Reuse, Specify 10%	Recycled Content, Specify 25%	Recycled Content Specify 50%	Local/Beginnal materials 20% Manufactured Locally	Local/Benional materials of 20%, Above 50%, Harvested Locally	Lucar negional materials, of 20% Above, 30% naivested Lucary	Bapidly Benewable Materials	Certified Wood	MR SUBTOTAL	INDOOR ENVIRONMENTAL QUALITY	EQ Prereq 1 Minimum IAQ Performance	Environmental Tobacco Smoke (ETS) Control	Carbon Dioxide (CO2) Monitoring Increase Ventilation Effectiveness	Increase Ventilation Effectiveness	Construction IAQ Management Plan, During Construction	Construction IAQ Management Plan, Before Occupancy	Low-Emitting Materials, Adhesives & Sealants	Low-Emitting Materials, Paints	Low-Emitting Materials, Carpet	Low-Emitting Materials, Composite Wood	Indoor Chemical & Pollutant Source Control	Controllability of Systems, Perimeter	Controllability of Systems, Non-Perimeter	I hermal Comfort, Comply with ASHRAE 55-1992	Dadicht 8 Visus Dadicht 75% of Second	Daylight & Views, Daylight 73 % of Spaces	EQ SUBTOTAL		INNOVATION & DESIGN PROCESS	Innovation in Design: Specific Title	Innovation in Design: Specific Title	Innovation in Design: Specific Title	Innovation in Design: Specific Title	LEED Accredited Professional	ID SUBTOTAL			IIOTALS:
LEED Credit	MATERIAL	MAIEHIAES	MR Prereq 1		MR 1.2			MR 2.2	MR 3.1						Ī	MR6			INDOOR ENV	EQ Prereq 1	EQ Prereg 2	-		_					4					EQ 7.2				INNOVATION	ID 1.1	ID 1.2		ID 1.4	102				

LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
LEED PLATINUM SCENARIO - 52 POINTS MINIMUM

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														No Additional Cost - Implement EPA's Best Momt Practices Post-Construction	200		Non Amilicable at Senior Center / Community Center Public Parking Let	Silvin Silvin				Non Annicable at Senior Center / Community Center Park in Collifornia Climata	Callio												High Efficiency Water Chilled HVAC System, High Performanc Glazing, Raised					Design	ntracted		ner													
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ents			덿	3id	ity Center	Non Applicable at Senior Center / Community Center Site	ää	ower				Non Applicable considering Senior Center Program		Mamt Pr	5		atry Cente					ity Canto	Non Applicable at Senior Center / Community Center Site	my ocume	High efficiency / low flow nlumbing fixtures and conserva-	aliu scils				wner	310	gg gg	gg.		n, High P					orated in	ning Cons		t contract	Non Applicable at Senior Center / Community Center Site												
Comments			d Base E	nd Base E	Community	Commun	nd Base E	n with sh	stations			r Center		A's Best			Commin			大型製造工程		Committee	Committee	d fixtures	fixturos	ואוחומא		A TANKS THE PARTY OF		cted by C	d Base E	d Base E	d Base E		C Syster		, and a second			te Incorp	mmission		onsultant	Commun												
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			incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Non Applicable at Senior Center /	at Senior	Incorporated in Original Design and Base Bid	Men's & Women's Changing Room with shower	Two dual electric vehicle charging stations	ost	ost	consideri	Pervious Paving at Parking Lots	ost - Imp	Add 30% more 24" box trees	ost	at Senior				OSt	at Senior	Senior	No Additional Cost - high efficiency fixtures	/ low flow	NO NO				Commissioning Consultant contracted by Owner	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid		Water Ch	r circulati				stem - Ac	g and re	ost	rvices of	at Senior												
			orated in	orated in	pplicable	pplicable	orated in	& Wome	ual electr	No Additional Cost	No Additional Cost	pplicable	us Pavin	ditional	0% more	No Additional Cost	policable				No Additional Cost	phlicable	policable	Jenoitio	fficiancy	incloud.				ilssioning	orated in	orated in	orated in		Efficiency	Penem a				voltaic Sy	onal testir	No Additional Cost	sional Se	pplicable												
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15% Contractor	Mark Up							\$1,650	\$1,2				\$4,950		\$1,710			\$9,510							\$2 310	60 010	62,0									\$37,500				inclusive					\$37,500										_	
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								ing Rm.	Alternative Transportation, Alternative Fuel Retueling Stations		Space				Landscape & Exterior Design to Reduce Heat Islands, Non-roof	ls, Roof						Water Efficient Landscaping. No Potable Use or No Irrigation	8						STREET STREET				Buns	sting	sting	sting	sting																			
	The second secon						ccess	Alternative Transportation, Bicycle Storage & Changing Rm	Refuelin	Ā	Reduced Site Disturbance, Protect of Restore Open Space	ootprint	ity		eat Island	Landscape & Exterior Design to Reduce Heat Islands, Roof						se or No							oric Colic	2		1 ,007	Optimize Energy Performance, 20% New / 10% Existing	Optimize Energy Performance, 30% New / 20% Existing	Optimize Energy Performance, 40% New / 30% Existing	Optimize Energy Performance, 50% New / 40% Existing	Optimize Energy Performance, 60% New / 50% Existing				-															
Description	- Andrews						Alternative Transportation, Public Trans. Access	Storage	ative Fue	Alternative Transportation, Parking Capacity	of Rest	Reduced Site Disturbance, Development Footprint	Stormwater Management, Rate and Quantity	ent	Reduce H	Reduce H					Water Efficient Landscaping, Reduce by 50%	Potable L	jes	ction	rion					Minimum Francis Defended of the continuous c) IIIeili	1/0 INew /	% New /	% New /	% New /	% New /							***************************************												
Desc	e e e e e e e e e e e e e e e e e e e		Control			<u>.</u>	n, Public	n, Bicycle	n, Alterna	n, Parkin	e, Protec	e, Devel	ıt, Rate a	it, Treatm	sign to F	sign to F					oina, Rec	oing. No	echnolog	0% Redii	0% Redu				Comoto	Sicilis C	nance	an Edui	nance, 2	nance, 30	nance, 40	nance, 50	nance, 60				9		lon													
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	Section Section	9	Erosion & Sedimentation Control	Site Selection	Urban Redevelopment	Brownfield Redevelopment	ative Irai	ative Trai	ative Trai	ative Trai	ed Site	ed Site	water Ma	Stormwater Management, Treatment	cape & E	cape & E	Light Pollution Reduction	SS SUBTOTAL		N. Salahara	Efficient	Efficient	Innovative Wastewater Technologies	Use Rec	Water Use Beduction 30% Reduction	WE CHIRTOTAL	20100	DHEDE	otaom	nici lai D	Minimum Energy Performance	Cro Reduction III nvAcan Equipment	ize Energ	ize Energ	ize Energ	ize Energ	ize Energ	Henewable Energy, 5%	Heriewable Eriergy, 10%	Renewable Energy, 20%	Additional Commissioning	Ozone Depletion	Measurement & Veritication	Green Power	EA SUBTOTAL											
, <u>=</u>		BLESIT	Т	Site S	Urban	Brown	Altern	Altern	Altern	Altern	Reduc	Reduc	Storm	Storm	Lands	Lands	Light	SS SL		FICIENC	Water	Water	Innove	Water	Water	ME	O II	ATMOS	The Part of	+	Т	\neg	Domin	Optim	Optim	Optim	Optim	Henev	Lerie	Renev	Addittic	Czone	Measu	Green	EA SL											
LEED Credit		SUSTAINABLE SITES	SS Prered 1	SS 1	SS 2	SS 3	SS 4.1	SS 4.2	SS 4.3	SS 4.4	SS 5.1	SS 5.2	SS 6.1	SS 6.2	SS 7.1	SS 7.2	888			WATER FEFICIENCY	WE 1.1	WE 1.2	WE 2	WE 3 1	WE32			ENERGY & ATMOSPHERE	A Drozo	LA LIGITA -	EA Prefed 2	EA Frered 3	EA 1.1	EA 1.2	EA 1.3	EA 1.4	EA 1.5	EA 2.1	EA 2.2	EA 2.3	EA3	EA 4	EA 5	EA 6												

LEED STUDY FOR CITY OF SUNNYVALE
Case Study: Sunnyvale Senior Center
CEED PLATINUM SCENARIO - 52 POINTS MINIMUM
with Estimated Associated Building Costs

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Comments		Incorporated in Original Design and Race Bid	Non Applicable at Serier Center / Community Center City	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Incorporated in Original Design and Base Bid	No Additional Cost		Non Applicable at Senior Center / Community Center Site	No Additional Cost	Premium for high recycle content materials such as ceiling tiles, & ceramic tile	Non Applicable at Senior Center / Community Center Site	Non Applicable at Senior Center / Community Center Site	Linoleum	Frooms - Need 5% of total building materials cost for credit			Incorporated in Original Design and Base Bid	ncorporated in Original Design and Base Bid	Economizers	No Additional Cost	Filters & mitigation measures for adjacent buildings (Recreation Bldg.)	Supervision of Building Flush Out	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	Criti/yway yi illes/grates at iviain & Patio Doors	Operable windows @ bottom pane of all aluminum storefront windows	Incorporated in Original Design and Base Bid	Incorporated in Original Design and Base Bid	Incorporated III Original Design and base Bid Increase storefront glazing ±70 SE add (2) 4'v4' korizontal all III Lea	Incorporated in Original Design and Base Bid				Sustainable Educational Display	ntal cleaning materials			Incorporated in Original Design and Base Bid								James	
Estimated % Cost	Increase	%0.0	2/210			%0.0	%0.0			%0.0	0.5%				0.0%	0.5%		%0.0	0.0%		%0.0					0.0%		0.1%	0.1%		0.0%	_							0.1%			0.1%		- 27	14 4%					
Total Estimated	COST	\$0					\$0				\$17,250				0006-			\$0					\$7,0	9		9 8	611		910,5	9		\$6.900		\$72,550	4		· &	80	\$10,000	é	000	\$10,000			\$1,754,020					
Estimated Contractor	Mark Op	0\$				\$0					\$2,250				000 83	L				\$3,7		91,0		9		9		\$1,350				89		\$8,550			Q	\$0	0\$	ě	000	2			\$63,120			6	ı	
Estimated Material		0\$				\$0	\$0			\$0	\$15,000			0000	000 02\$	\$34,200		\$0	\$	\$25,000	\$0	\$7,000	\$7,000	09	OF G	G G	\$10,000	000,618	000,50	9	9	\$6,000	\$	\$64,000			\$0	0,50	\$10,000	E	900	000,014		200,000,000						
Potential for Senior	Califal	0				-	-			-	-			-	- -	9		0	0	-			- -	- -	- -	-	-	-		-	-	-	-	15			- ,	- -	-	-	-	‡			ZC.					
Possible LEED Points	0.00	0	-	-	+	-	-	-		-	-	-	-	-	-	13		0	0		-	_ -	_	- -	- -	- -	-	-	- -	-	-	-	-	15	-		-	- -	- -	- -	- 4			WARRING CO.	BO STATE					
Description	WATERIALS & RESOURCES	Storage & Collection of Recyclables	Building Reuse, Maintain 75% of Existing Shell	Building Reuse, Maintain 100% of Existing Shell	Building Reuse, Maintain 100% of Existing Shell & 50% Non-Shell	Construction Waste Management, Divert 50%	Construction Waste Management, Divert 75%	Resource Reuse, Specify 5%	Resource Reuse, Specify 10%	Recycled Content, Specify 25%	Recycled Content, Specify 50%	Local/Regional materials, 20% Manufactured Locally	Local/Regional materials, of 20% Above, 50% Harvested Locally	Banidiy Banawahla Matariala	Certified Wood	MR SUBTOTAL	NDOOR ENVIRONMENTAL QUALITY	Minimum IAQ Performance	Environmental Tobacco Smoke (ETS) Control	Carbon Dioxide (CO2) Monitoring Increase Ventilation Effectiveness	Increase Ventilation Effectiveness	Construction IAC Management Plan, During Construction	Construction IAG Management Plan, before Occupancy	Low-Emitting Materials, Adilesives & Segiants	Low Emitting Materials Carnet	Low-Emitting Materials, Carpet low-Emitting Materials, Composite Wood	Indoor Chemical & Pollutant Source Control	Controllability of Systems. Perimeter	Controllability of Systems. Non-Perimeter	Thermal Comfort, Comply with ASHRAE 55-1992	Thermal Comfort, permanent Monitoring System	Daylight & Views, Daylight 75% of Spaces	Daylight & Views, Views for 90% of Spaces	EQ SUBTOTAL		INNOVATION & DESIGN PROCESS	Innovation in Design: Specific Title	Innovation in Design. Specific Title	Innovation in Design: Specific Title	FED Accredited Professional	ID SUBTOTAL	12.00								
LEED Credit	MATERIALS	MR Prereq 1	_	MR 1.2	MR 1.3	MR 2.1	MR 2.2	MR 3.1	MR 3.2	MH 4.1	MR 4.2	MR 5.1	MR 5.2	MBR			INDOOR ENV	-	rereq 2				EU 3.2					L	T							INNOVATION	101	Ī	21.5											

ATTACHMENT E
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LEED V2.1 Analysis for Java/Mathilda Core and Shell Sunnyvale, CA

Java/Mathilda LEED v2.1 Analysis

Project Checklist

Sustainable Sites

14 Possible Points

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Comments									Cost Prohibitive								
	Erosion & Sedimentation Control	Site Selection	Urban Redevelopment	Brownfield Redevelopment	Alternative Transportation Public, Transportation Access	Alternative Transportation, Bicycle Storage & Changing Rooms	Alternative Transportation, Alternative Fuel Vehicles	Alternative Transportation, Parking Capacity	Reduced Site Disturbance, Protect or Restore Open Space	Reduced Site Disturbance, Development Footprint	Stofmwater Management, Rate and Quality	Stormwater Management, Treatment	Heat Island Effect, Non-Roof	Heat Island Effect, Roof	Light Pollution Reduction		Subtotals
	Prereq 1	Credit 1	Credit 2	Credit 3	Credit 4.1	Credit 4.2	Credit 4.3	Credit 4.4	Credit 5.1	Credit 5.2	Credit 6.1	Credit 6.2	Credit 7.1	Credit 7.2	Credit 8		
Project Cannot Meet Criteria		-	-	-				-									4
"Less Strong Likelihood" Cost Impact																	
Possible Project Strong Likelihood (if New Project)	-						-		-								-
Cost Impact						\$50,000	\$10,000					\$2,000	\$40,000	\$50,000	\$80,000		\$232,000
"Strong Likelihood"						\$50	\$1					**	\$	€	\$8		\$2
Possible Project Points with Strong Likelihood (if New Project) "Strong I ikelihood"						1 \$50	1 \$10						1 \$4	1	1 \$8		6 \$2
Points with Strong Likelihood (if New Project)	Met				_	1 \$50				_			1 \$4	1 \$5			

Page 4

5 Possible Points

Java/Mathilda LEED v2.1 Analysis

Water Efficiency

Comments			Cost Prohibitive				
	Water Efficient Landscaping, Reduce by 50%	Water Efficient Landscaping, No Potable Use or No Irrigation	Innovative Wastewater Technologies	Water Use Reduction, 20% Reduction	Water Use Reduction, 30% Reduction		Subtotals
	Credit 1.1	Credit 1.2	Credit 2	Credit 3.1	Credit 3.2		
Project Cannot Meet Criteria							0 .
"Less Strong Likelihood" Cost Impact							
Posaible Project Points with Less Strong Likelihood (if New Project)			-				-
"Strong Likelihood" Cost Impact				\$0	\$5,000		\$5,000
Possible Project Points with Strong Likelihood (if New				_	-		. 2
Points (Existing Condition)	-	_					2
Probable Project		1		1	1	1	
	Possible Project Points with Strong Likelihood (if New "Strong Likelihood" Cost Impact Points with Less Strong Likelihood (if New Project Strong Likelihood Meet Cannot Meet Criteria	Possible Project Points with Strong Likelihood (if New Project) "Strong Likelihood" Cost Impact Points with Less Strong Likelihood (if New Project) Project Cannot Project Cannot Meet Criteria "Less Strong Likelihood (if New Project) "Less Strong And Project Cost Impact (if New Project) "Less Strong Strong Cost Impact (if New Project) (if Ne	Project Strong Likelihood" Project Cannot Cost Impact Cost Impact Meet Chiens Credit 1.1 Water Efficient Landscaping, Reduce by 50% Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation Irrigation Irrigation	Possible Project Credit 1.1 Credit 1.2 Credit 1.2 Credit 2.2 Credit 2.2 Credit 2.2 Credit 2.2 Credit 2.2 Credit 2.2 Credit 2.3 Credit 3.3 C	Project Mater Use Reduction, 20% Reduction Project Credit 3.1 Water Efficient Landscaping, Reduce by 50% Credit 3.1 Water Use Reduction, 20% Reduction Project Credit 3.1 Water Use Reduction, 20% Reduction	Project Cannot Project Projec	Project Critical Project Control of Credit 1.1 St. October 1.2 St.,000 Credit 3.1 Water Use Reduction, 30% Reduction Control of Credit 3.2 Water Use Reduction, 30% Reduction Credit 3.2 Water Use Reduction, 30% Reduction

Energy & Atmosphere

17 Possible Points

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Comments				Cost is for additional credit		ď
	Fundamental Building Systems Commissioning	Minimum Energy Performance	CFC Reduction in HVAC&R Equipment	Optimize Energy Performance	Renewable Energy, 5%	
	Prereq 1	Prereq 2	Prereq 3	Credit 1	Credit 2.1	
Project Cannot Meet Criteria						
"Less Strong Likelihood" Cost Impact				\$400,000	\$500,000	
Possible Project Points with Less Strong Likelihood (if New Project)				1 add.	-	
"Strong Likelihood" Cost Impact	-				-	iors
Possible Project Points with Strong Likelihood (if New Project)						RMW Architecture & Interiors
Probable Project Points (Existing Condition)	Met	Met	Met	2		Architec
LEED System Points	0	0	0	10	-	RMW

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Materials & Resources

13 Possible Points

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Comments									-	Cost Prohibitive
	Storage and Collection Recyclables	Building Reuse, Maintain 75% of Existing Shell	Building Reuse, Maintain 100% of Shell	Building Reuse, Maintain 100% Shell & 50% Non-Shell	Construction Waste Management, Divert 50%	Construction Waste Management, Divert 75%	Resource Reuse, Specify 5%	Resource Reuse, Specify 10%	Recycled Content, Specify 5% (p.c. + ½ p.i.)	Recycled Content, Specify 10% (p.c. + ½ p.i.)
	Prereq 1	Credit 1.1	Credit 1.2	Credit 1.3	Credit 2.1	Credit 2.2	Credit 3.1	Credit 3.2	Credit 4.1	Credit 4.2
Project Cannot Meet Criteria		-	-	-			-	-		
"Less Strong Likelihood" Cost Impact										
Possible Project Points with Less Strong Likelihood (if New Project)										1
"Strong Likelihood" Cost Impact					\$20,000	\$30,000			\$40,000	
Possible Project Points with Strong Likelihood (if New Project)		-			-	-			_	
Probable Project Points (Existing Condition)	Met									
LEED System Points	Ö	_	-	-	-	-	-	-	-	1

ATTACHMENT E

RMW Architecture & Interiors

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					Credit 5.1	Local/Regional Materials 20% Manufactured Locally	
-		1	\$250,000		Credit 5.2	Local/Regional Materials, of 20% in MRc5.1, 50% Harvested Locally	Likely would require structural system chance
		NA			Credit 6	Rapidly Renewable Materials	"Less Strong Likelihood" if T.I. was incl. in scope: \$100K cost
	\$20,000				Credit 7	Certified Wood	"Less Strong Likelihood" if T.I. was included in scope
 _	\$110,000	2		5		Subtotals	
				•			

ATTACHMENT E
Page 5 of 8

Page 7

Page O of S

Indoor Environmental Quality

15 Possible Points

Comments		No Cost Impact				"Strong Likelihood" if T.I. was incl. in scope; min \$15K+ cost			"Strong Likelihood" if T.I. was included in scope: \$0 cost			"Less Strong Likelihood" if T.I. was incl. in scope; \$250K cost		LEED Interpretation Required	Credit 7.1 Needed First	"Less Strong Likelihood" if T.I. was included in scope	"Strong Likelihood" if T.I. was included in scope; \$0 cost	
	Minimum IAQ Performance	Environmental Tobacco Smoke (ETS) Control	Carbon Dioxide (CO ₂) Monitoring	Ventilation Effectiveness	Construction IAQ Management Plan, During Construction	Construction IAQ Management Plan, Before Occupancy	Low-Emitting Materials, Adhesives & Sealants	Low-Emitting Materials, Paints	Low-Emitting Materials, Carpet	Low-Emitting Materials, Composite Wood	Indoor Chemical & Pollutant Source Control	Controllability of Systems, Perimeter	Controllability of Systems, Non-Perimeter	Thermal Comfort, Comply with ASHRAE 55-1992	Thermal Comfort, Permanent Monitoring System	Daylight & Views, Daylight 75% of Spaces	Daylight & Views, Views for 90% of Spaces	Subfotals
	Prereq 1	Prereq 2	Credit 1	Credit 2	Credit 3.1	Credit 3.2	Credit 4.1	Credit 4.2	Credit 4.3	Credit 4.4	Credit 5	Credit 6.1	Credit 6.2	Credit 7.1	Credit 7.2	Credit 8.1	Credit 8.2	
Project Cannot Meet Criteria													-					-
"Less Strong Likelihood" Cost Impact				\$1.1M														
Possible Project Strong Likelihood Strong Likelihood (if New Project)				_								NA				NA		1
"Strong Likelihood" Cost Impact			\$10,000		\$20,000		\$0	\$0		\$0	\$20,000			\$0	\$15,000		-	\$65,000
Points with Strong Likelihood (if New Project)		Would Be Met	- -		-	NA	-	-	N A	-	-			-	-		Ϋ́	8
Possible Project		_				1			t .		1						, ,	
1	Met	Not Met																0

5 Possible Points

LEED v2.1 Analysis Java/Mathilda

Innovation & Design Process

	-,					
Comments	Example: Education of Occupants	Unknown Cost Impact	Unknown Cost Impact	Unknown Cost Impact		
	Innovation in Design	Innovation in Design	Innovation in Design	Innovation in Design	LEED ^{IM} Accredited Professional	Subtotals
	Credit 1.1	Credit 1.2	Credit 1.3	Credit 1.4	Credit 2	
Project Cannot Meet Criteria						0
"Less Strong Likelihood" Cost Impact						
Possible Project Points with Less Strong Likelihood Stroject)		_	-	-		3
"Strong Likelihood" Cost Impact	\$0				\$0	\$0
Possible Project Points with Strong Likelihood (if New Project)	-				1	2
Probable Project Points (Existing Condition)						0
LEED System Points	—	-	-	-	-	rc C

Certified 26-32 points, Silver 33-38 points, Gold 39-51	points; Platinum 52-69 points	. (
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Project Point Totals

9

7

\$492,000

24

00

69

Total Cost Increase for "Strong Likelihood" Credits Total Construction Cost (existing project) **Project Cost Totals** \$492,000

\$14.0M

Summary
69 — Total LEED System Points Allowed
69 — Total Probable Points, LEED Uncertified (existing condition), "0" project cost impact
24 — Total Possible Project Points with Strong Likelihood (if new core/shell project), 08 + 24 = 32, Certified, at \$492,000 = increase of 4% of "construction cost"

ATTACHMENT E

Page,

To achieve Silver level (if new core/shell project), include "LEED certification" credits + credit MR 5.2 at \$250,000 = increase of 6% of "construction cost" Gold level is cost prohibitive, and platinum level is not attainable.

Appendix A
Impacts on LEED Credits by City Ordinances
January 9, 2004

LEED V2.1 Analysis for Java/Mathilda Core and Shell Sunnyvale, CA

RMW prepared an analysis for the Java/Mathilda Core and Shell Project dated December 15, 2003, based on USGBC LEED system Version 2.1. The analysis of the existing development was intended to determine how a typical new office building development in the City of Sunnyvale would perform in relation to the LEED Green Building Rating System. The analysis concluded that, although the Java/Mathilda project did not base its development on LEED certification, it did garner some LEED credits. Some of those credits captured were due to beneficial site conditions, while others were due to design. Of those captured, a few of the credits (and prerequisites) were garnered, in part, because of City of Sunnyvale Ordinance requirements.

Following is a list of credits that were positively impacted by City of Sunnyvale Ordinances, and other City of Sunnyvale key elements:

LEED Credit	Ordinance or System Impacting Credit
Sustainable Sites, Erosion & Sedimentation Control, Prerequisite 1 (prereq only, no credits available)	City of Sunnyvale Best Management Practices
Sustainable Sites, Alternative Transportation, Public Transportation Access, Credit 4.1 (1 credit captured)	Light rail system in close proximity to site
Sustainable Sites, Alternative Transportation , Bicycle Storage & Changing Rooms, Credit 4.2 (O credits captured)	Santa Clara Valley Transportation Authority Technical Guidelines for bike parking used by City of Sunnyvale, although not meeting the count requirement by LEED, was positively impacting this credit
Sustainable Sites, Alternative Transportation , Alternative Fuel Vehicles, Credit 4.4 (O credits captured)	City of Sunnyvale Title 19 requiring preferential parking for HOV's. Credit not captured because overall site parking capacity exceeded minimum reqt.
Sustainable Sites, Heat Island Affect , Non-Roof, Credit 7.1 (0 credits captured)	City of Sunnyvale Title 19 requiring 50% coverage in 15 years, although not meeting the 30%/5 yr requirement by LEED, is a strong step towards meeting the spirit of the credit. There is a potential for this reqt to change as LEED is looking into possibly modifying this credit to make it more achievable, and realistic. City of Sunnyvale's 50%/15yr reqt is likely the type of direction LEED is investigating.
Water Efficiency, Water Efficient Landscaping, Reduce by 50%, Credit 1.1 (1 credit captured)	City of Sunnyvale recycled water system achieves this credit
Water Efficiency, Water Efficient Landscaping, No Potable Use or No Irrigation, Credit 1.2 (1 credit captured)	City of Sunnyvale recycled water system achieves this credit
Energy & Atmosphere, Minimum Energy Performance , Prerequisite 2 (prereq only, no credits available)	Title 24 requirements achieves this prerequisite
Energy & Atmosphere, Optimize Energy Performance , Credit 1 (2 credits captured)	Title 24 requirements aided in capturing credits
Materials & Resources, Storage & Collection of Recyclables, Prerequisite 1 (prereq only, no credits available	City of Sunnyvale Title 19 requiring recyclable storage

Attachment F Page 1 of 2

COUNCIL POLICY FORM

SUBJECT: Sustainable Development and Green Buildings

POLICY PURPOSE

This policy is designed to encourage sustainable development throughout the City of Sunnyvale, provide education and information to the community, and to serve as an acknowledgement by the City Council of the importance of sustainable development concepts and practices.

POLICY STATEMENT

It is the policy of the City Council to encourage new and remodeled development within the City to incorporate sustainable design principles in the following disciplines:

- Sustainable sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality

The City of Sunnyvale adopts the following policy statements in recognition of the importance of sustainable development:

- Remodeled City facilities will incorporate sustainable design practices in the areas noted above (e.g. carpeting, paint, recycled content materials, concrete, Certified Wood, etc.) to the extent practicable.
- As material specifications and standards for maintenance and remodeling of City facilities are reviewed, inclusion of sustainable design practices (e.g. carpeting, paint, recycled content materials, environmentally-friendly cleaning products, concrete, Certified Wood, etc.) will be considered by staff.
- City staff are encouraged to attend green building seminars and workshops to keep current with industry innovations and products.
- Provide on-going education and outreach to residents, businesses, and development community.

Attachment F Page 2 of 2

- Prior to the planning or design of any new city facility over 10,000 square feet of conditioned space, LEED certification with the US Green Building Council will be considered by the City Council.
- New residential construction shall be encouraged to use the Alameda County Waste Management Authority's Home Remodeling: Green Building Guidelines for green building design and construction techniques.
- Provide incentives industrial/office development to incorporate green building design practices.

Report to Council No	
Approved by Council on	
Deputy City Clerk Certification	

DRAFT ORDINANCE NO.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SUNNYVALE AMENDING SECTION 19.32.070 OF THE SUNNYVALE MUNICIPAL CODE PERTAINING TO FLOOR AREA RATIO

THE CITY COUNCIL OF THE CITY OF SUNNYVALE DOES ORDAIN AS FOLLOWS:

<u>SECTION 1</u>. SECTION 19.32.070 AMENDED. Section 19.66 of the Sunnyvale Municipal Code is hereby amended to read as set forth in Exhibit "A," attached and incorporated by reference.

SECTION 2. EXEMPTION FROM CEQA. The City Council finds, pursuant to Title 14 of the California Code of Regulations, Section 15061(b)(3), that this ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) in that it is not a Project which has the potential for causing a significant effect on the environment.

<u>SECTION 3</u>. EFFECTIVE DATE. This ordinance shall be in full force and effect thirty (30) days from and after the date of its adoption.

SECTION 4. POSTING AND PUBLICATION. The City Clerk is directed to cause copies of this ordinance to be posted in three (3) prominent places in the City of Sunnyvale and to cause publication once in an adjudicated newspaper of general circulation in the City of Sunnyvale, of a notice setting forth the date of adoption, the title of this ordinance, and a list of places where copies of this ordinance are posted, within fifteen (15) days after adoption of this ordinance.

Introduced at a regular r	neeting of the City Council held
, 2004, and a	adopted as an ordinance of the City of
Sunnyvale at a regular meeting	g of the City Council held on
, 2004, by	y the following vote:
AYES:	
NOES:	
ABSENT:	
ATTEST:	APPROVED:
City Clerk	Mayor
(SEAL)	

Section 19.32.070. FLOOR AREA RATIO (FAR)

DRAFT ORDINANCE

- (6) Sustainable Development. Buildings located in the industrial zoning districts will be allowed an additional 5% Floor Area Ratio (FAR) above that allowed by the existing zoning district and General Plan, without a Use Permit (unless otherwise required by the SMC), when all of the following conditions are met:
- a. The building is designed to a LEED Certified building or a higher level;
- b. The building is registered and intended to be certified by the US Green Building Council (USGBC);
- c. A LEED accredited professional is required on the design team; and
- d. The entire project site has a Transportation Demand Management (TDM) program that shows traffic trip rates are not greater than the base FAR would generate.